

CHAPTER FIVE

THE ENVIRONMENT - SENSITIVE AREAS AND CRITICAL ISSUES

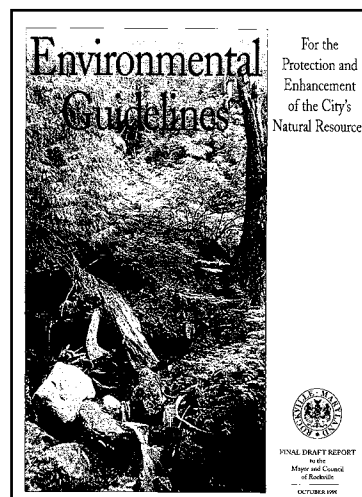
GOAL: *Integrate the protection of the environment in all public and private development and land use decisions to promote the health and safety of and enhance the quality of life for the citizens of Rockville.*

POLICIES

1. Continue to support and implement the 1999 *Environmental Guidelines*.
2. Implement environmental programs that will protect and enhance the city's natural resources and ensure that environmental impacts from development are limited or mitigated.
3. Continue to support and implement Rockville's stormwater management/watershed strategies within existing neighborhoods.
4. Work to mitigate noise from Route 270, Route 355, Route 28, and Gude Drive.
5. Maintain, enhance, and preserve the City's urban forest and establish a goal for canopy coverage.
6. Pursue sustainable practices to protect environmental quality and natural resources for the use of present and future generations.

INTRODUCTION

Protection of the natural environment is an important goal for the City of Rockville because it is necessary to maintain and enhance the quality of life of its citizens. It must be taken into consideration in all public and private development decisions because protection and enhancement of the natural environment is an integral part of a community's fundamental social health. To strengthen the protection of the land and existing natural resources within Rockville from the adverse effects of new development during and after the development process, the City has adopted many regulations and guidelines over the years including floodplain regulations in 1977, sediment and stormwater management regulations in 1978, forest and tree preservation regulations in 1992, and the "*Environmental Guidelines*" in 1999. Although there are numerous policies and regulations that are in place to guard and to improve the health of the environment within the city limits, environmental protection and enhancement is a continuous process.



Rockville is an urbanized area with few large tracts of vacant, developable land remaining within the existing city boundaries. The City's growth pattern has followed what was recommended in its 1960, 1970, and 1993 master plans. In addition, Montgomery County's 1964 Master Plan established corridors of development along major transportation routes such as I-270 and identified Rockville as a corridor city - an area where development should be

concentrated. Also under this plan, developed corridor areas were to be separated by “wedges” of farmland, open space, and low density housing. Subsequent County master plans reconfirmed this growth pattern which is closely related to the “smart growth” initiatives that are outlined by the State of Maryland.

Protecting sensitive areas is likewise an important part of the “smart growth” philosophy. Protecting Rockville’s stream valleys, flood plains, steep slopes, forested areas and wildlife habitats is interrelated with a high quality standard of life that is ecologically sound.

Water Quality: Streams, Stream Buffers, and Stormwater Management

Rockville is located within the headwaters of the Cabin John Creek, and Watts Branch watersheds and several major tributaries of Rock Creek. All of these streams flow through the city and drain into the Potomac River that in turn drains into the Chesapeake Bay. Enhancing and protecting the Chesapeake Bay is a primary example of an important regional and state-wide goal that Rockville can positively influence with the City’s environmental policies. Consequently, improving the quality of surface and storm water runoff with state-of-the art, environmentally friendly techniques has become one of the most important environmental policies of the city.

Rockville adopted a Stormwater Management Program in 1978 that is designed to protect and restore streams and water quality through the comprehensive management of stormwater runoff. The City SWM Program has been updated in 2002 to comply with new state requirements. The two major components of the program are: 1) manage the stormwater runoff for all new development to state-approved standards for both water quantity and quality control; and 2) retrofit runoff control measures into older neighborhoods and commercial areas that were built prior to 1978 or are without adequate stormwater controls. Watershed studies are conducted that culminate in Watershed Management Plans that address technical issues, neighborhood concerns, recreational impacts, tree and wetland preservation, and overall watershed management objectives. Watershed Planning objectives include measures such as decreased stream erosion, improved aquatic habitat, improved water quality by removing excess nutrients and pollutants from the stream and watershed, public education and involvement opportunities, and habitat improvement and stewardship projects. Watershed-based plans provide a balance between the pursuit of stormwater improvement projects that benefit streams and overall watershed health with the needs of the community for active and passive recreational and parkland resources.

Recommendations

1. Retain existing streams in a natural state.
2. Rehabilitate degraded streams, stream banks, and wetlands.
3. Continue to implement the stream buffer guidelines.
4. Maintain and enhance existing native vegetation along streams and in wetlands.
5. Develop and promote an “Adopt-a-stream” clean-up program.
6. Develop and implement a stream monitoring program.
7. Continue to acquire land adjacent to streams or within the 100-year floodplain.
8. Utilize conservation easements along streams when the purchase of the property is not possible.

9. Require the latest best management practices for treating and controlling stormwater in all development projects.
10. Pursue innovative strategies, including demonstration projects in appropriate cases, to minimize the area of impervious surfaces within all new, infill, or redevelopment projects and for meeting the minimum zoning requirements for parking and access.
11. Continue to restrict the stormwater runoff rate and volume to predevelopment levels for all new development and redevelopment.
12. Continue to work with developers to mitigate adverse stormwater conditions from existing off-site conditions whenever possible.
13. Pursue comprehensive watershed management strategies within all of the watersheds including the use of innovative approaches and demonstration projects to address local stream health needs.
14. Implement stormwater management retrofit projects in a manner that balances consideration of overall local and regional watershed restoration goals with the need to preserve public land for multiple recreational and conservation uses and maintain public safety. Seek retrofit opportunities that avoid significant compromise to existing open space and recreational amenities in public parkland except when there are no feasible alternatives.
15. Increase the “no mow” areas adjacent to streams in city parks wherever appropriate.

Water Quality: Nutrient Reduction, Pollution Control, and Enforcement

Reducing excess nutrient levels and pollutants that are contained within surface water is another critical environmental objective. Known as “non-point source” pollutants, much of the nutrients and pollutants come from stormwater runoff washing off from ordinary residential properties into the street drainage system and then into streams. The nutrients and pollutants are in the form of lawn fertilizers, pesticides, pet waste, and automobile oil. Excess nutrients contained in stormwater runoff adversely affect the water quality of Rockville’s streams and ponds. In addition, it has been found that excess nutrients and pollutants have contributed to the degradation of the water quality of the Chesapeake Bay and the decline of the shellfish industry.

Protecting our streams and wetlands from the dumping of pollutants and debris is also very important because of the potential for irreparable damage to the water quality. This can harm the wildlife dependent upon the water and potentially the city’s drinking water supply that comes from the Potomac River. While a prompt enforcement response cannot guarantee a successful cleanup, it is more likely to increase its likelihood.

Recommendations

1. Develop an education program directed toward homeowners on the topics of pollution and nutrient reduction to be consistent with state and federally mandated requirements.
2. Explore appropriate ways and locations to identify City streams and watersheds (including the Chesapeake Bay Watershed).
3. Develop a fertilizer, pesticide, and herbicide reduction program for City-owned and maintained properties.
4. Develop a City ordinance (or adopt the County’s regulations) that prohibits acts of illegal dumping of materials, chemicals, and/or other waste products into a storm drain, wetland, stream, or other body of water and outlines a procedure for enforcement and fines.

Wetlands and the 100-Year Flood Plain

By definition, a wetland is an area that is inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions, commonly known as hydrophytic vegetation. Wetlands have many beneficial effects on water quality. As pollutants and nutrients contained in stormwater travel through wetlands, they are gradually absorbed by vegetation and filtered by the soil before they are washed into streams and ultimately the Chesapeake Bay. Wetlands also help to reduce the velocity of flowing water that lessens its ability to loosen and carry away soil particles further downstream. In addition, wetlands provide food and habitat for a wide variety of animal life.

Generally, floodplains are low areas located next to streams and rivers and are subject to cyclical flooding. Maintaining floodplains in a natural state is important because they absorb the flood waters and gradually release floodwaters to adjoining rivers and streams. Building within the floodplain can result in a great deal of damage to property during storm-related flooding; therefore, floodplains are regulated by Rockville, Maryland Department of the Environment, and the Federal Emergency Management Agency (FEMA). New development is not permitted in floodplains, and additions to existing structures are subject to a variety of flood protection measures.

Recommendations

1. Protect and provide buffers for isolated wetlands that are not regulated by federal and state agencies.
2. Adopt a goal of “no net loss” of wetlands within the City limits and identify potential wetland replacement areas for situations where this goal cannot be achieved.
3. Discourage construction of inappropriate structures within wetlands and floodplains.
4. Promote wetland enhancement projects.
5. Promote the preservation and/or planting of native wetland vegetation in all wetland and floodplain areas.
6. Allow only passive recreational activities in the floodplain (such as walking trails).
7. Continue to utilize the City’s setbacks from the 100 year floodplain.

Erosion and Steep Slopes

Erosion is the process by which the ground surface is worn away by the action(s) of wind, water, ice, or gravity. It typically occurs from vegetated land that is disturbed by development, agriculture, or from stream banks that are worn away. Slopes with a gradient equal to or greater than 25% are generally unstable and must be protected because once disturbed, are easily eroded and very difficult to stabilize. Dirt and debris washed from construction sites, streets, and parking lots are ultimately deposited in our streams adding to siltation and water pollution so that streams may become unclean, unsightly, and unfit for use.

Rockville adopted stormwater management and sediment control regulations in 1978 to minimize the amount of erosion and off-site sedimentation during the development and construction process. Rockville will continue to explore new sediment control techniques to decrease the amount of sedimentation and pollution leaving the site.

Recommendations

1. Continue to discourage development on steep slopes.
2. Maintain or plant vegetation on all steep slopes.
3. Expand the conservation easement program to protect steep slopes.
4. Maximize the use of erosion, sedimentation, siltation, and stream pollution control measures during construction and maintain them until the site is stabilized.
5. Utilize innovative technology for soil erosion control. Use additional sedimentation and erosion control measures as necessary to protect a site so that less sediment leaves the site or washes into streams.

Habitats of Rare, Threatened or Endangered Species: Plants, Fish, and Wildlife

Rockville is home to a number of State listed “Watchlist Species,” as designated by the Maryland Department of Natural Resources, Natural Heritage program but does not have any Federal or State listed rare, threatened or endangered species of plants, fish, or wildlife. “Watchlist Species” are those species that are uncommon and/or experiencing severe declines in population size or range in Maryland but are not actively tracked by the Heritage and Biodiversity Conservation Program. Total statewide populations of watchlist species are generally within the 21-100 range. Consequently, the City should work towards identifying potential habitats for native wildlife species and establishing means to protect them. Such protection measures include land acquisition, establishing conservation easements, and forest restoration. As urban wildlife habitat areas are increased, community-wide education programs also should be encouraged to foster wildlife tolerance and appreciation.

Recommendations

1. Maintain large undeveloped tracts of wooded and open parkland throughout the City.
2. Conserve wildlife habitats and create minimum buffer zones in order to preserve, protect, and enhance wildlife areas.
3. Develop strategies for improving wildlife habitats and fostering desired wildlife within parkland.
4. Develop strategies to encourage desirable urban wildlife habitats on residential properties, including the use of native landscaping practices and habitat programs such as *Bayscapes*.
5. Continue to develop strategies to resolve human-wildlife conflicts.
6. Identify existing habitat locations for rare, threatened, endangered in need of conservation, and/or watch list species (as designated by the Maryland Department of Natural Resources) as they become known.

Tree Preservation

Tree preservation programs play a critical part in many facets of environmental protection including stream bank protection, erosion control, climate control, and enhancing wildlife habitat. The non-profit conservation organization, American Forests, recommends that urban areas maintain an average tree canopy coverage of 40 percent to ensure a healthy and sustainable ecosystem.

Forest conservation plans are required for new developments within the City. These plans may require reforestation on or off site depending upon the amount of forest cleared. However, because of the lack of reforestation sites within the city, it is important to identify all possible planting sites and utilize non-traditional sites (such as more and larger planting islands within parking lots) to increase the overall amount of tree cover within the city. Street trees also provide many important environmental benefits while enhancing the livability of the community and increasing property values.

Recommendations

1. Continue to implement regulations associated with the Maryland Forest Conservation Act and the Rockville Forest and Tree Preservation Ordinance. The first order of priority for forest and tree preservation, reforestation, or afforestation measures is to meet these requirements on the affected development site.
2. Determine the current percentage of tree canopy within the City.
3. Work to implement increased tree canopy coverage by utilizing both traditional methods and non-traditional planting locations such as increasing the number of trees in parking lots.
4. Continue to implement the Street Tree Master Plan.
5. Explore, refine, and implement urban tree planting systems that increase tree longevity.

Solid Waste Management and Recycling

Because landfills are recognized as a significant contributor to groundwater and air pollution, it is important to reduce the amount of solid waste reaching a landfill. Maryland and Montgomery County have issued directives for recycling and the management of household hazardous waste. Rockville has played a significant role toward attaining the County's recycling goals, but more needs to be accomplished.

Recommendations

1. Continue to participate in regional efforts to reduce solid waste.
2. Continue to support recycling efforts.

Air Quality and Noise

Management of air quality is a regional challenge since atmospheric pollutants travel long distances and across geographical boundaries. Rockville has little direct involvement in air quality management and limited direct influence on air pollution control. However, there are several policies that could help to reduce air pollution caused by vehicle exhaust such as promoting employee telecommuting, increasing the subsidies for the use of public or alternative forms of transportation, supporting "bike to work" programs and facilities, and increasing the number of city fleet vehicles that utilize an alternative fuel source. In addition, Rockville's efforts to promote a vibrant Town Center and Rockville Pike corridor will provide opportunities to live and work in the same community that will aid in regional efforts to meet air quality goals. Efforts to improve the energy efficiency of buildings and construction practices also have a positive impact on regional efforts to reduce air emissions produced by the generation of power.

Radon is a naturally occurring gas produced by the radioactive decay of uranium. It enters structures through dirt floors, cracks in concrete floors and walls, floor drains, sumps, and joints. Elevated levels of indoor radon may be associated with lung cancer. In Rockville, the majority of homes have been classified as having a moderate risk for radon potential. Radon resistant construction, as outlined in the building code, is required for all new residential construction for single family homes and town houses. Testing for radon is a relatively simple and inexpensive procedure. The test is usually performed when a house is being sold. If high levels of radon are found, corrective measures can be undertaken, but these measures are not mandated under the building code.

Excessive noise can also be considered to be an environmental problem. Noise from an individual site is controlled by the Montgomery County Noise Control Ordinance. Noise that emanates from public or quasi public facilities such as highways, arterial roads, and railroads, is more difficult to control. The most significant source of noise in Rockville is caused by automobile and truck traffic concentrated along heavily traveled roadways especially I-270, Route 355, Route 28, and Gude Drive. The construction of noise barriers consisting of walls, berms, and/or vegetation have proven somewhat helpful in reducing noise from highways. However, these measures do not entirely eliminate noise and in many instances may exacerbate the noise problem elsewhere. New development adjacent to existing noise sources should be evaluated to determine potential noise impacts and designed in such a way as to minimize impacts on interior spaces and exterior recreational areas. Addressing excessive noise affecting existing developed areas requires a consistent City-wide approach to identify current noise levels, and any areas that may potentially be subject to significant increases in noise level. This will enable the City to identify "hot-spots" and develop alternatives and a strategy for improving the quality of life in those areas affected by excessive noise.

Recommendations

1. Participate in regional efforts to reduce air pollutants in the Washington, D.C. metropolitan area.
2. Continue to provide employee subsidies for those using mass transit.
3. Develop land use patterns that cluster services and residential uses to promote the use of transit thereby reducing automobile use.
4. Explore innovative methods or techniques to encourage alternative fuels, such as vehicles that use alternative fuels or electricity, in order to improve air quality.
5. Require private companies to provide bike lockers, racks, and dressing areas as sites are developed or redeveloped.
6. Work actively with County and State officials to provide safe pedestrian and bicycle routes and crossings at all intersections.
7. Provide incentives for private companies within Rockville to encourage alternative means of transportation for their employees where feasible.
8. Promote energy efficient, "green" building practices through the development of incentives and recognition or award programs for developers and homeowners.
9. Install noise barriers along highways where appropriate and consistent with an overall City-wide strategy.
10. Where possible, plant street trees and establish wide vegetated buffers along major highways to help to reduce air and noise pollution.
11. Undertake City-wide evaluation of existing transportation-related noise levels, the potential for increases in noise levels, and develop alternatives and a strategy for addressing noise in existing developed areas.

12. Evaluate the application of current County Noise Ordinance criteria as it applies to the City, and determine need for separate or additional City noise control regulatory mechanisms.
13. Implement site design practices and building construction methods to reduce the impacts of noise both within new structures and on adjacent areas.

Promote Sustainable Practices and Policies

Sustaining and enhancing the quality of life and environmental health in our community is a central goal in Rockville's vision for the future and cuts across many of the underlying principles of this Master Plan. Sustainable practices and policies are those that synergistically support environmental health and quality, economic well-being, and community equity and vitality. A fundamental feature of the concept of sustainability is the responsibility of current generations to ensure the ability of future generations to share an equal or higher quality of life as currently exists. As noted in Chapter One, this vision for the future is also mandated in the Maryland Planning Act which states that a community's master plan include measures that foster conservation of resources, including a reduction in resource consumption. Rockville can achieve this and the larger vision of sustaining and enhancing its quality of life and environmental health by pursuing the following:

Recommendations

1. Work with City Boards and Commissions (STEC) and the residents of Rockville to develop a community-based approach for a Sustainable Rockville.
2. Promote the use of energy-efficient, functional landscapes in new development proposals.
3. Identify and pursue opportunities to improve the conservation of natural resources and reduce resource consumption in City maintenance and operational practices.
4. Promote EPA *Energy Star* energy efficiency conformance where appropriate in new and re-development and in City operations.
5. Work with the local community and Greater Rockville Partnership to develop and promote education and recognition programs, such as Businesses for the Bay and LEED certification, to make information available and promote the transfer of ideas and technology.